

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

(PCT Rule 66)

Applicant's or agent's file reference 020113WO		Date of mailing (day/month/year) 28 OCT 2005
International application No. PCT/US03/00495		REPLY DUE within 2 months/days from the above date of mailing
International filing date (day/month/year) 07 January 2003 (07.01.2003)	Priority date (day/month/year) 09 January 2002 (09.01.2002)	
International Patent Classification (IPC) or both national classification and IPC IPC(7): H04B 3/36, 7/14 and US Cl.: 455/7, 9, 23, 11, 18, 15, 16, 24, 370/315, 522		
Applicant QUALCOMM INCORPORATED		

1. ☒ The written opinion established by the International Searching Authority:

☒ is ☐ is not
 considered to be a written opinion of the International Preliminary Examining Authority.
2. This second (first, etc.) opinion contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the opinion
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: **09 May 2004 (09.05.2004)**

Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Kenneth Wieder Telephone No. 571-272-2986
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Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this opinion has been established on the basis of *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed.")*:

- ☒ the international application as originally filed/furnished
- ☒ the description:
- pages 1-20 as originally filed/furnished
- pages NONE received by this Authority on _____
- pages NONE received by this Authority on _____
- ☒ the claims:
- pages 21-35 as originally filed/furnished
- pages NONE as amended (together with any statement) under Article 19
- pages NONE received by this Authority on _____
- pages NONE received by this Authority on _____
- ☒ the drawings:
- pages 1-14 as originally filed/furnished
- pages NONE received by this Authority on _____
- pages NONE received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

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Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>Please See Continuation Sheet</u>	YES
	Claims <u>Please See Continuation Sheet</u>	NO
Inventive Step (IS)	Claims <u>Please See Continuation Sheet</u>	YES
	Claims <u>Please See Continuation Sheet</u>	NO
Industrial Applicability (IA)	Claims <u>Please See Continuation Sheet</u>	YES
	Claims <u>Please See Continuation Sheet</u>	NO

2. Citations and Explanations:
Please See Continuation Sheet

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient.)

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Report on Patentability (Chapter II of the Patent Cooperation Treaty).

V.1. Reasoned Statements:

The opinion as to Novelty was positive (Yes) with respect to claims 3,5,9-14,22,25,28-32,39,41-47,60-64,70-74,77-82
The opinion as to Novelty was negative (No) with respect to claims 1,2,4,6-8,15-21,23,24,26,27,33-38,40,48-59,65-69,75,76
The opinion as to Inventive Step was positive (Yes) with respect to claims 3,5,9,11-14,22,25,29-32,39,41,42,44-47,61-64,71-74,78-82
The opinion as to Inventive Step was negative (NO) with respect to claims 1,2,4,6-8,10,13-21,23,24,26-28,33-38,40,43,48-60,65-70,75-77
The opinion as to Industrial Applicability was positive (YES) with respect to claims 1-82
The opinion as to Industrial Applicability was negative (NO) with respect to claims NONE

V. 2. Citations and Explanations:

Claims 1, 2, 4, 6-8, 15-21, 23, 24, 26, 27, 33-38, 40, 48-59, 65-69, 75 and 76 lack novelty under PCT Article 33(2) as being anticipated by Durrant et al. (WO 01/99444).

Consider 1. Durrant teaches a method of monitoring communications traffic, comprising the steps of: receiving at least one of a plurality of signal transmissions wherein each of the signal transmissions is associated with a call associated with one of a plurality of remote stations; processing the plurality of received signal transmissions to identify received transmissions that include a discriminant applied by a repeater; and designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant. As to claim 2, Durrant teaches the method further comprising the step of: associating the designated signal transmission with a monitoring characteristic.

As to claim 4, Durrant teaches the method wherein the step of designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant comprises the step of: designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant and the discriminant includes a signature associated with the repeater.

As to claim 6, Durrant teaches the method of claim 4, wherein the discriminant comprises a frequency modulation applied to the signal transmission.

As to claim 7, Durrant teaches the method of claim 4, wherein the discriminant comprises an amplitude modulation applied to the signal transmission.

As to claim 15, Durrant teaches the method wherein the plurality of signal transmissions are reverse link, i.e. uplink transmissions and the discriminant comprises a reverse link discriminant.

As to claim 16, Durrant teaches the method wherein the plurality of signal transmissions are received in a base station, i.e. uplink.

As to claim 17, Durrant teaches the method wherein the plurality of signal transmissions are forward link, i.e. downlink transmissions and the discriminant comprises a forward link discriminant.

As to claim 18, Durrant teaches the method wherein the plurality of signal transmissions are received in a remote station, i.e. downlink.

As to claim 19, Durrant teaches the method wherein the step of designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant comprises the steps of: transmitting a signal

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(To be used when the space in any of the preceding boxes is not sufficient.)

having the forward link discriminant to a base station', and processing the signal having the forward link discriminant in the base station to identify received transmissions that include the forward link discriminant.

As to claim 20, Durrant teaches the method further comprising the steps of: receiving the message having the forward link discriminant in a repeater; processing the received message to include a reverse link discriminant; transmitting the processed message having the forward link discriminant and the reverse link discriminant to a base station; and processing the signal having the forward link discriminant and the reverse link discriminant to identify received transmissions having the forward link discriminant and the reverse link discriminant.

As to claim 21, Durrant teaches the method further comprising the steps of: controlling at least one of set of parameters associated with the repeater based on the whether the plurality of received signal transmissions are being transmitted via the repeater.

As to claim 37, Durrant teaches an apparatus for identifying communications transmitted via repeater, comprising: means for receiving at least one of a plurality of signal transmissions, wherein each of the signal transmissions is associated with a call associated with one of a plurality of remote stations; means for processing the plurality of received signal transmissions to identify received transmissions that include a discriminant applied by a repeater and means for designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant.

As to claim 38, Durrant teaches the apparatus of claim 37, further comprising: means for associating the designated signal transmission with a monitoring characteristic.

As to claim 40, Durrant teaches the apparatus wherein the means for designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant comprises: means for designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant and the discriminant includes a signature associated with the repeater.

As to claim 48, Durrant teaches the plurality of signal transmissions are reverse link transmissions and the discriminant comprises a reverse link discriminant.

As to claim 49, Durrant teaches the apparatus wherein the plurality of signal transmissions are received in a base station.

As to claim 50, Durrant teaches the apparatus wherein the plurality of signal transmissions are forward link transmissions and the discriminant comprises a forward link discriminant.

As to claim 51, Durrant teaches the apparatus wherein the plurality of signal transmissions are received in a remote station.

As to claim 52, Durrant teaches the apparatus wherein the means for designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes a discriminant comprises: means for transmitting a signal having the forward link discriminant to a base station; and means for processing the signal having the forward link discriminant in the base station to identify received transmissions that include the forward link discriminant.

As to claim 53, Durrant teaches the apparatus further comprising: means for receiving the message having the forward link discriminant in a repeater; means for processing the received message to include a reverse link discriminant; means for transmitting the processed message having the forward link discriminant and the reverse link discriminant to a base station; and means for processing the signal having the forward link discriminant and the reverse link discriminant to identify received transmissions having the forward link discriminant and the reverse link discriminant.

As to claim 55, Durrant teaches a method of distinguishing communications transmitted via a repeater from communications not transmitted via the repeater, comprising the steps of: receiving a signal transmission in the repeater; processing the received signal to include a discriminant having a signature associated with the repeater; and transmitting the processed received signal.

As to claim 56, Durrant teaches the method wherein the processed received signal is transmitted to a base station.

As to claim 57, Durrant teaches the method wherein the processed received signal is transmitted to a remote station.

As to claim 58, Durrant teaches the method wherein the step of processing the received signal to include the discriminant having the signature associated with the repeater comprises the step of: augmenting the received signal with the discriminant.

As to claim 59, Durrant teaches the method wherein the step of processing the received signal to include the discriminant having the signature associated with the repeater comprises the step of: modifying the signal according to the discriminant.

As to claim 66, Durrant teaches an apparatus for distinguishing communications transmitted via a repeater from communications not transmitted via the repeater, comprising: means for receiving a signal transmission in the repeater; means for processing the received signal to include a discriminant having a signature associated with the repeater; and means for transmitting the processed received signal.

As to claim 67, Durrant teaches the apparatus wherein the means for processing the received signal to include the discriminant having the signature associated with the repeater comprises: means for augmenting the received signal with the discriminant.

As to claim 68, Durrant teaches the apparatus wherein the means for processing the received signal to include the discriminant having the signature associated with the repeater comprises: means for modifying the signal according to the discriminant.

As to claim 69, Durrant teaches the apparatus wherein the means for processing the received signal to include a discriminant having a signature associated with the repeater comprises: means for augmenting the signal transmission with a first frequency modulated discriminant.

Consider claim 8. Durrant teaches everything claimed except for the discriminant comprising an in-band tone. It would have been obvious to one of ordinary skill in the art to modify Durrant to use an in band tone as the discriminant in order to utilize a well know method of signaling.

Consider claims 23, 75. Durrant teaches an apparatus for identifying communications transmitted via a repeater, comprising: a receiver configured to receive a plurality of signal transmissions, wherein each of the signal transmissions is associated with a call originating from or directed to one of the plurality of remote stations; and a means configured to identify received transmission: that include a discriminant applied by a repeater and to designate each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant. Durrant lacks a teaching of the discriminant identification process being performed by a processor. It would have been obvious to one of ordinary skill in the art to modify Durrant to use a processor to

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perform the method in order to allow the process to be performed in a small sized package.

As to claim 24, Durrant teaches the apparatus wherein the designated signal transmission is associated with a monitoring characteristic.

As to claim 26, Durrant teaches the apparatus wherein each of the plurality of received signal transmissions is designated as being transmitted via the repeater if the received signal transmission includes the discriminant and the discriminant includes a signature associated with the repeater.

As to claims 27, 76, Durrant teaches the apparatus wherein the discriminant comprises a frequency modulation applied to the signal transmission from the remote station.

As to claim 33, Durrant teaches the apparatus wherein the plurality of signal transmissions are reverse link transmissions and the discriminant comprises a reverse link discriminant.

As to claim 34, Durrant teaches the apparatus wherein the transmissions are received in a base station.

As to claim 35, Durrant teaches the apparatus wherein the plurality of signal transmissions are forward link transmissions and the discriminant comprises a forward link discriminant.

As to claim 36, Durrant teaches the apparatus wherein the plurality of signal transmissions are received in a remote station.

As to claim 54, Durrant teaches a method for identifying communications transmitted via a repeater from remote communications not transmitted via the repeater, the method comprising the steps of: receiving a plurality of signal transmissions from a plurality of remote stations wherein each of the signal transmissions is associated with a call associated with one of the plurality of remote stations; processing the plurality of received signal transmissions to identify received transmissions that include a discriminant applied by a repeater; and designating each of the plurality of received signal transmissions as being transmitted via the repeater if the received signal transmission includes the discriminant. Durrant lacks a teaching of a program storage device, readable by a computer, storing a program of instructions executable by the computer to perform method. It would have been obvious to one of ordinary skill in the art to modify Durrant to store the method as a program on a storage device in order to allow the method to be easily transferred and executed on another system. As to claim 65, Durrant teaches everything claimed as shown in reference to claim 55 above, except for the repeater comprising a digital television or a digital audio repeater. It would have been obvious to one of ordinary skill in the art to use the teaching of Durrant in digital television or audio systems in order to allow the use of the television or audio with the location monitoring as taught by Durrant.

Claims 10, 28, 43, 60, 70 and 77 lack an inventive step under PCT Article 33(3) as being obvious over Durrant, in view of Meslener (US 3,670,249).

Consider claims 10, 28, 43, 60, 70. Durrant teaches everything claimed as shown above except for using delay modulation to code and decode the discriminant. Meslener teaches the use of delay modulation to encode data (Meslener see especially col. 1, lines 5-57). Meslener teaches that delay modulation allows for high reliability and speed (Meslener col. 4, lines 18-37). Therefore it would have been obvious to use delay modulation in order to provide the discriminant with a coding having high reliability.

As to claim 77, note that the arrangement of Durrant in view of Meslener would have a delay element, i.e. the delay modulator as well as a combiner to add it to the signal.

Claims 3, 5, 9, 11-14, 22, 25, 29-32, 39, 41, 42, 44-47, 61-64, 71-74 and 78-82 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the following:

Consider claim 3, the nearest prior art as shown in Durrant fails to teach the method of claim 1, wherein the monitoring characteristic is selected from a group comprising: a length of the call associated with the designated signal transmissions; a number of calls associated with the designated signal transmissions; a number of dropped calls associated with the designated signal transmissions; a call start time associated with the designated signal transmission; a frame error rate (FER) associated with the designated signal transmission; a receive power associated with the designated signal transmission; and a call type associated with the designated signal transmission.

Consider claim 22, the nearest prior art as shown in Durrant fails to teach the method of claim 21, wherein the at least one of a set of parameters is selected from a group comprising: a repeater forward link gain; a repeater reverse link gain; repeater activation; repeater deactivation; repeater forward link frequency; repeater forward link bandwidth; repeater reverse link frequency; repeater reverse link bandwidth; and repeater rebroadcast channels.

Consider claim 23, the nearest prior art as shown in Durrant fails to teach the apparatus of claim 24, wherein the monitoring characteristic is selected from the group comprising: a length of the call associated with the designated signal transmissions; a number of calls associated with the designated signal transmissions; a number of dropped calls associated with the designated signal transmissions; a call start time associated with the designated signal transmission; a frame error rate (FER) associated with the designated signal transmission; a receive power associated with the designated signal transmission; and a call type associated with the designated signal transmission.

Consider claim 39, the nearest prior art as shown in Durrant fails to teach the apparatus wherein the monitoring characteristic is selected from a group comprising: a length of the call associated with the designated signal transmissions; a number of calls associated with the designated signal transmissions; a number of dropped calls associated with the designated signal transmissions; a call start time associated with the designated signal transmission; a frame error rate (FER) associated with the designated signal transmission; a receive power associated with the designated signal transmission; and a call type associated with the designated signal transmission.

Consider claim 5, the nearest prior art as shown in Durrant fails to teach the method of claim 4, further comprising the steps of: processing the plurality of signal transmissions to identify received transmissions that include the discriminant applied by a second repeater; and designating each of the plurality of received signal transmissions as being transmitted via the second repeater if the

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received signal transmission includes the discriminant and the discriminant includes a second signature associated with the second repeater.

Consider claims 41-42 the nearest prior art as shown in Durrant fails to teach the apparatus of claim 40, further comprising: means for processing the plurality of signal transmissions to identify received transmissions that include the discriminant applied by a second repeater, and means for designating each of the plurality of received signal transmissions as being transmitted via the second repeater if the received signal transmission includes the discriminant and the discriminant includes a second signature associated with the second repeater.

Consider claims 71-74 the nearest prior art as shown in Durrant fails to teach the apparatus of claim 70, wherein the means for processing the received signal to include a discriminant having a signature associated with the repeater further comprises: means for augmenting the signal transmission with a second delay modulated component of the signal transmission.

Consider claims 78-82, the nearest prior art as shown in Durrant fails to teach the repeater of claim 77, wherein the first delay element communicatively coupled to the receiver via a switch, and the repeater further comprises: a second delay element, communicatively coupled to the receiver via the switch and to the combiner.

Consider claim 9, the nearest prior art as shown in Durrant fails to teach the method of claim 4, wherein the discriminant comprises power control information received at the remote station.

Consider claims 11-14, the nearest prior art as shown in Durrant fails to teach the method of claim 10, wherein the discriminant further includes a second delay component of the signal transmission.

Consider claims 29-32, the nearest prior art as shown in Durrant fails to teach the apparatus of claim 28, wherein the discriminant further includes a second delay modulated component of the signal transmission.

Consider claims 44-47, the nearest prior art as shown in Durrant fails to teach the apparatus of claim 43, wherein the discriminant further includes a second delay component of the signal transmission.

Consider claims 61-64, the nearest prior art as shown in Durrant fails to teach the method of claim 60, wherein the step of processing the received signal to include a discriminant having a signature associated with the repeater further comprises the step of: augmenting the signal transmission with a second delay modulated component of the signal transmission.

Claims 1-82 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----

WO 01/99444 A1 (DURRANT, et al.) 27 December 2001.

US 3,670,249 (MESLENER) 13 June 1972, col. 1, lines 5-57, col. 4, lines 18-37.